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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,281	11/08/2001	Gerhard Schmidt	1406/14	3569

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EXAMINER

SINGH, RAMNANDAN P

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/914,281	Applicant(s) SCHMIDT, GERHARD	
	Examiner Ramnandan Singh	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in the U.S on 08 October 2001. The priority application in German has been received. It is noted, however, that applicant has not filed a certified copy of the priority application as required by 35 U.S.C. 119(b).

2. **Preliminary Amendment**

The Preliminary amendment filed on 24 August 2001 is approved.

Specification

3. The abstract of the disclosure is objected to because it contains "Fig. 3" at the end. Delete "Fig. 3". Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-2, 4-5, 11-12, 15-20, 22-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Oh [US 5,933,495]

Regarding claim 1, Oh teaches a device, as shown in Fig. 2, for subband noise suppression in telephone devices using a subband adaptive filter (216) wherein the control circuit for adjusting the filter coefficients operates in the subband and synthesis filter(234) transforms the subband reduced-noise signal into a full-band signal [Figs. 2-3; col. 4, lines 9-67].

Claim 11 is essentially similar to claim 1 and is rejected for the reasons stated above.

Regarding claim 2, Oh teaches the device wherein synthesis filter(234) transforms the subband reduced-noise signal into a full-band signal.

Claim 12 is essentially similar to claim 2 and is rejected for the reasons stated above.

Regarding claim 4, Oh teaches the device wherein in the control circuit , the input circuit is connected a DFT modulated polyphase filter bank (i.e. **band pass filter bank 212**) [col. 1, line 21 to col. 2, line 17; col. 4, lines 9-31; col. 9, lines 29-40].

Regarding claim 5, Oh teaches the device wherein the power of the subband signal is computed [Fig. 4; col. 4, line 32 to col. 5, line 18].

Regarding claims 15-20, the limitations are shown above.

Regarding claim 22, see Fig. 7.

Regarding claim 23, Oh further teaches automatic gain control to control the filter coefficients [Figs. 2-9; col. 3, lines 16-33; col. 4, line 65 to col. 5, line 60; claim3].

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6-9, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh as applied to claims 5, 20 above, and further in view of Itoh et al [US 5,757,937].

Regarding claim 6, Oh teaches estimating the power of the background noise. However, Oh does not teach expressly applying the psycho-acoustic weighting of the disturbed subband powers.

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Itoh et al teach applying the psycho-acoustic weighting, $W(f)$, of the disturbed powers [Figs. 6-7; col. 3, lines 14-51; col. 4, line 63 to col. 5, line 15; col. 7, line 33 to col. 8, line 2; col. 8, line 10 to col. 9, line 9]. It is nevertheless a teaching to one of ordinary skill in the art to do the same thing with Oh.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide the psycho-acoustic weighting technique of Itoh et al with Oh in order to minimize the degradation of speech quality and drastically reduce the psycho-acoustically displeasing residual noise [Itoh et al; col. 3, lines 41-62; col. 4, line 6-12].

Claim 21 is essentially similar to claim 6 and is rejected for the reasons stated above.

Regarding claim 7, see Fig. 6 of Itoh et al.

Regarding claim 8, Itoh et al further teach using an inverse Fourier transform to transform the signal to a time-domain signal [Abstract; col. 4, line 63 to col. 5, line 15]

Regarding claim 9, Itoh et al further teach computing the attenuation of the signal [col. 8, line s20-38; Abstract].

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8. Claims 3, 10, 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh as applied to claims 1, 11 above.

Regarding claim 3, Oh does not teach expressly the device wherein the additional filter or filters have a group propagation time ≤ 2 ms. It may, however, be noted that using this specific value of the parameter of the noise reduction circuit is a matter of design choice.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use any value of the group propagation time of the filter subject to circuit, system and design constraints.

Claims 10, 13-14 are also rejected for the same reasons as stated in claim 3 above.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(i) Slyh et al [US 5,574,824] teaches an analysis-synthesis based noise reduction system[Figs. 1-7; Abstract].


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (703)308-6270. The examiner can normally be reached on M-F(8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester Isen can be reached on (703)-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramnandan Singh
Examiner
Art Unit 2644



FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER